Investment Section

CHIEF INVESTMENT OFFICER'S REPORT

INVESTMENT OVERVIEW

The Maryland State Retirement and Pension System returned -2.97 percent net of fees in fiscal year 2022, relative to the actuarial return target of 6.80 percent, and -3.48 percent for its policy benchmark. Including the payment of benefits, the market value of assets decreased by approximately \$3.3 billion, from \$67.9 billion on June 30, 2021 to \$64.6 billion on June 30, 2022.

Most publicly traded assets generated negative returns in fiscal year 2022, as global central banks began to raise rates in the second half of the fiscal year in response to high inflation. The System's public equity portfolio returned -19.4 percent while the bond portfolio achieved -15.3 percent. While fiscal year 2022 was a challenging year for traditional asset classes like stocks and bonds, the performance was not evenly distributed across all asset classes as private markets fared much better. The private real estate portfolio produced the highest return for the fiscal year at 30.6 percent, followed by private equity at 24.5.

The Board's asset allocation policy is designed to achieve the actuarial rate of return over long periods of time by assembling a diversified portfolio of asset classes, each of which may have a large or small, positive or negative return in any given year. By assembling assets that exhibit distinct risk and return characteristics in different market environments, the Board expects more stable investment returns over time than a less diversified portfolio. This lower risk portfolio should result in a larger asset pool for the System's beneficiaries than a more volatile portfolio with the same average return. Understanding the Board's principals of asset allocation is important in evaluating the performance in any one-year period. While the realized return of -2.97 percent for fiscal year 2022 falls short of the Board's longterm expectation for the portfolio, it is within its expected ranges for annual variations.

The System's asset allocation is organized into five broad categories: Growth/Equity, Rate Sensitive, Credit, Real Assets, and Absolute Return. During the fiscal year, the Board approved minor adjustments to the asset allocation that included modest increases to private equity, rate sensitive and real assets, and corresponding decreases in public equity, credit and absolute return. These changes are expected to improve the risk and return profile of the portfolio.

The Growth/Equity portfolio is comprised of public equity and private equity. Within public equity, there are dedicated allocations to U.S., international developed, and emerging markets. The objective of this asset class is to generate high returns associated with the economic growth underlying global economies.

The Rate Sensitive category consists of exposure to core, or investment-grade, bonds. This asset class is designed to provide protection against most downturns in the equity market by offering a reliable income stream through the yield component. This yield also provides some protection against a deflationary environment, characterized by falling interest rates. This asset class includes long-duration U.S. Treasury bonds, Treasury inflation protected securities, corporate bonds and securitized debt.

The purpose of the Credit asset class is to take advantage of the potential higher returns offered by below investment-grade bonds. The return objective is similar to public equity, with a lower risk profile. This category includes high yield bonds, bank loans, emerging markets debt, distressed debt, mezzanine debt, and other credit-focused investments.

Real Assets includes real estate, natural resources and infrastructure investments. A significant portion of the assets in this category provides a regular income stream. Due to the tangible, or real, element of this asset class, it is expected to provide some level of protection against an inflationary environment, as well as additional diversification to the total portfolio.

The objective of the Absolute Return asset class is to achieve a return that falls between the expectations for public equity and bonds, with low correlation to other asset classes. The risk profile of this asset class is expected to be significantly lower than public equity, which should provide protection during periods of stock market decline. Strategies in this asset class include event-driven, global macro, relative value and opportunistic funds.

INVESTMENT POLICY AND OBJECTIVES

The Board of Trustees is charged with the responsibility of managing the assets of the System. In doing so, the Board is required to exercise its fiduciary duties solely in the interest of the participants with the care, skill, and diligence that a prudent person would exercise under similar circumstances. This standard of care encourages diversifying investments across various asset classes.

Investment objectives are designed to support the fulfillment of the Board's mission to optimize risk-adjusted returns to ensure that sufficient assets are available to pay benefits to members and beneficiaries when due. As a long-term investor, the Board understands that short-term market returns will fluctuate.

These investment objectives are implemented in accordance with investment policies developed by the Board. The "prudent person standard", as outlined in both the Maryland Annotated Code and the Board's investment policies, allows the Board to set investment policies and delegate authority to investment professionals employing active and passive strategies. Firms that have been retained generally have a demonstrated performance record and a clearly defined and consistently applied investment process.

The Board manages the assets for the System with the goal of achieving an annualized investment return that over a long-term time frame: (1) meets or exceeds the investment policy benchmark for the System; (2) in nominal terms, equals or exceeds the actuarial investment return assumption adopted by the Board; and (3) in real terms, exceeds the U.S. inflation rate by at least 3 percent. A more detailed discussion of each of these goals follows below.

- 1. Meeting or exceeding the Investment Policy Benchmark for the System. The Investment Policy Benchmark is calculated by using a weighted average of the Board-established benchmarks for each asset class. This benchmark enables the comparison of the actual performance of the System to a proxy portfolio and provides a measure of the contribution of policy implementation and active management to overall fund returns.
- 2. In nominal terms, meeting or exceeding the actuarial investment return assumption of the System. The Board adopts the actuarial rate of interest, which was set at 6.80 percent for fiscal year 2022. The actuarial investment return assumption functions as an estimate of the long-term rate of growth of the assets for the System. In adopting an actuarial return assumption, the Board anticipates that the investment portfolio will achieve higher or lower returns each year but will trend toward 6.80 percent over time.
- 3. In real terms, exceeding the U.S. inflation rate by at least 3 percent. The inflation related objective compares the investment performance against a rate of inflation measured by the Consumer Price Index (CPI) plus 3 percent. The inflation measure provides a link to the liabilities of the System, which have an embedded sensitivity to changes in the inflation rate.

The Board is also responsible for establishing the asset allocation policy for the System. It does this by weighing three liability-oriented objectives when making asset allocation determinations. These objectives include:

- 1. achieving and maintaining a fully funded pension plan;
- 2. minimizing contribution volatility year to year; and
- 3. realizing surplus assets.

Asset allocation policy targets are determined by recognizing that liabilities (future benefit payments to the participants and beneficiaries of the System) must be paid in full and on time. The mix of asset classes is chosen to provide sufficient growth to meet the long-term return objective of the System, while providing sufficient diversification to moderate the volatility of that return. For example, a portfolio of equities will likely provide the required return over a long time horizon but will subject the market value of the portfolio to unacceptable levels of volatility such that the goals of minimizing contribution volatility and realizing surplus assets would be difficult to achieve. Combining other asset classes with equities will provide differentiated return sources, reduce the volatility of returns and help realize those liability-oriented objectives.

The Board's long-term asset class targets and ranges as of June 30, 2022 are shown below.

	LONG-TERM	
ASSET CLASS	POLICY TARGET	RANGE
Growth/Equity	50%	+/-7%
U.S Equity	15%	
International Developed Equity	9%	
Emerging Markets Equity	10%	
Private Equity	16%	
Rate Sensitive	21%	+/- 5%
Long-term Government Bonds	10%	
Securitized/Corporate Bonds	6%	
TIPS	5%	
Credit	8%	+/- 4%
High Yield Bonds/Bank Loans	7%	
Emerging Market Debt	1%	
Real Assets	15%	+/- 4%
Real Estate	10%	
Natural Resources/Infrastructure	6%	
Absolute Return	6%	+/- 4%
Total Assets	100%	

INVESTMENT PERFORMANCE

Investment performance is calculated using time-weighted rates of total return, including the impact of fees and expenses. Total return includes interest and dividends, as well as capital appreciation.

The investment program realized a return of -2.97 percent, net of all fees, for fiscal year 2022. Annualized returns for the 3-, 5-, 10-, 20- and 25-year periods ending June 30, 2022 were 8.4 percent, 7.9 percent, 7.8 percent, 6.8 percent and 6.1 percent, respectively.

	FY 2022 SRPS Performance	FY 2021 Benchmark Performance	SRPS Exposure June 30, 2022
Public Equity	-19.4%	10.10/	28.5%
Custom Benchmark U.S. Equity Russell 3000	-13.3%	-18.1% -13.9%	10.7%
International Equity MSCI World ex U.S.	-18.0%	-16.8%	6.5%
Emerging Markets Equity MSCI Emerging Markets	-25.6%	-25.3%	7.9%
Global Equity MSCI AC World Index	-24.8%	-15.8%	3.4%
Private Equity Custom State Street PE	24.5%	24.0%	21.5%
Rate Sensitive Custom Benchmark BBG U.S. Gov't Long Index BBG Securitized BBG Corporate BC U.S. TIPS Index	-15.3%	-13.7% -18.4% -9.0% -14.2% -5.7%	17.6%
Credit/Debt Strategies Custom Benchmark BBG High Yield S&P LSTA Leveraged Loan BBG EM Hard Currency Sov BBG EM USD Corporate	-4.5%	-12.6% -12.8% -2.8% -22.7% -19.3%	7.9%
Real Assets Custom Benchmark	25.7%	19.9%	15.2%
Absolute Return Custom Benchmark	1.4%	3.0%	7.6%
Multi-Asset Custom Benchmark	-19.0%	-3.5%	0.4%
Cash Custom Benchmark	0.3%	0.2%	1.3%
TOTAL FUND	-3.0%	-3.5%	100%

The allocation as of June 30, 2022 reflects the ranges and transitional targets of the System as described in the previous section.

ECONOMIC AND CAPITAL MARKET OVERVIEW

Fiscal 2022 was a challenging year for investment returns, particularly in the second half of the year when central banks globally began to hike interest rates to combat above-target inflation rates. This inflation was fueled by stimulative monetary and fiscal policies implemented in response to the Covid-19 pandemic, as well as supply chain constraints caused by the rapid economic recovery and the war in Ukraine. Inflation, as measured by the Consumer Price Index (CPI), stood at 5.4% at the start of fiscal year 2022, which is significantly higher than the Federal Reserve's target of 2%. The Federal Reserve initially believed that the high inflation rate would be temporary, and moderate as balance between supply and demand was restored. However, inflation proved to be more persistent than the Federal Reserve anticipated, and by the end of calendar year 2021, CPI had increased to 7.0%. To get inflation under control and on a path toward the 2% target, the Federal Reserve began raising the federal funds rate in March of 2022, and again in May and June. By the end of fiscal year 2022, the Federal Reserve had raised rates by 1.5%, with more increases expected as CPI had climbed to 9.1%. Economic growth was negatively impacted by the Federal Reserve's response to the high inflation in the second half of fiscal year 2022. For the first two quarters of calendar year 2022, real gross domestic product posted readings of -1.6% and -0.6%, respectively.

This environment of high inflation, rising interest rates and slowing growth is not conducive for generating attractive returns in traditional stocks and bonds. Historically, bonds have acted as a ballast to a declining stock market and slowing economy, as interest rates typically fall in anticipation of stimulative monetary policy. That was not the case in fiscal year 2022, as central banks were raising interest rates to curb inflation, with the ten-year Treasury yield climbing from roughly 1.5% to 3.0% over the course of the year. As a result, both stocks and bonds generated returns of roughly -15% in fiscal year 2022.

While fiscal year 2022 was challenging for publicly traded stocks and bonds, other alternative asset classes performed quite well. The System's more diversified and balanced asset allocation provides exposure to asset classes like private equity, real estate and hedge funds. These asset classes generated positive returns in fiscal year 2022. Real estate was the System's best performing asset class for the year, producing a return of over 30%. Private equity, which represented approximately 20% of the total portfolio, achieved a return of over 24%, and remains the System's top performing asset class over the last ten years. The absolute return portfolio, which consists of mostly lower risk hedge funds that are largely not dependent on the performance of traditional asset classes, generated a positive return of 1.4%.

PUBLIC EQUITIES

As of June 30, 2022, approximately \$18.4 billion was invested in public equities, representing 28.5 percent of total assets. The public equity program consists of four components: U.S. equities, international developed equities, emerging markets equities and global equities.

The Terra Maria program, which seeks to identify promising smaller or developing management firms, is an integral part of the public equities' asset class. As of June 30, 2022, 71 percent of the public market Terra Maria program was invested in equities, with 57 percent in international stocks. Each of the managers in the Terra Maria program has an active management mandate. A more detailed discussion of the Terra Maria program follows below.

A. U.S. Equities

As of June 30, 2022, approximately \$6.9 billion, or 10.7 percent of total assets, was invested in U.S. public equities. Passively managed U.S. equities totaled \$3.4 billion, while Terra Maria program assets were \$306.7 million, representing 5.1 percent, and 0.5 percent of total assets, respectively.

U.S. Equity	\$ Millions	% of Total Plan
Passively/Enhanced Managed	\$3,367	5.2%
Actively Managed	\$3,264	5.1%
Terra Maria Program	\$307	0.5%
Total U.S. Equity	\$6,938	10.8%

For fiscal year 2022, U.S. equities returned -13.3 percent, compared to -13.9 percent for its benchmark, the Russell 3000 Index.

B. International Equities

As of June 30, 2022, approximately \$4.1 billion, or 6.5% of total assets, was invested in international equities, nearly all of which was managed actively. Terra Maria assets were \$1.3 billion, representing 1.9% of total assets. As more fully described below, in 2009 the System instituted a currency overlay program which is designed to protect the value of some foreign equities in a rising dollar environment.

International Equity	\$ Millions	% of Total Plan
Passively Managed	\$42	0.1%
Actively Managed	\$2,831	4.4%
Terra Maria Program	\$1,250	1.9%
Currency Overlay	\$63	0.1%
Total International Equity	\$4,831	7.1%

C. Emerging Market Equities

As of June 30, 2022, approximately \$5.1 billion, or 7.9% of total assets, was invested in emerging market equities. The portfolio is comprised of actively managed assets, except for a small allocation to a passive mandate representing 0.1% of plan assets.

Emerging Equity	\$ Millions	% of Total Plan
Passively Managed	\$56	0.1%
Actively Managed	\$5,028	7.8%
Total Emerging Markets Equity	\$5,084	7.9%

For the fiscal year, the portfolio returned -25.6% compared to -25.3% for the MSCI Emerging Market Index.

D. Global Equities

As of June 30, 2022, approximately \$2.2 billion, or 3.4% of total assets was invested in global equities, which includes both U.S. and foreign stocks. This portfolio is comprised of 100% active mandates.

Global Equity	\$ Millions % of T	Total Plan
Passive Management	\$125	0.2%
Actively Managed	\$2,083	3.2%
Currency Overlay	\$8	0.0%
Total Global Equity	\$2,216	3.4%

For the fiscal year, the portfolio returned -24.8% compared to -15.8% for the MSCI AC World Index.

CURRENCY OVERLAY PROGRAM

The currency overlay program was implemented in May of 2009. An objective of the program is to provide insurance against a strengthening dollar, which could negatively impact returns from foreign currency denominated equities. The manager in this program uses a systematic currency overlay strategy and generally, does not make fundamental currency valuation assessments. The strategy is also dynamic in that the degree to which currency hedging is applied changes depending on currency market conditions. The manager in this program uses low hedge ratios when the dollar is weakening, and high hedge ratios when the dollar is strengthening.

During fiscal year 2022, the currency program generated positive value in the System's foreign equity holdings, as the U.S. dollar strengthened relative to other currencies. The added value of the currency hedging program during the fiscal year was \$111.2 million. Since the inception of the currency hedging program, it has served to reduce volatility and improve the risk/return profile of the System's international and global equity portfolios.

PRIVATE EQUITY

As of June 30, 2022, private equity totaled \$13.9 billion, or 21.5% of total assets. This asset class includes buyouts, growth equity, venture capital, secondaries and funds-of-funds.

In fiscal year 2022, commitments were made to 34 private equity funds and co-investments, totaling \$1.9 billion. Since the inception of the private equity program in fiscal year 2005, \$20.6 billion in commitments have been made to 291 different funds and co-investments. Unfunded commitments totaled \$6.0 billion as of June 30, 2022. Future commitments will follow a pacing model designed to maintain the target allocation. In fiscal year 2022, the private equity program generated a time-weighted return of 24.5%, compared to 24.0% for its benchmark, the State Street Private Equity Index. This return is net of all fees, expenses and carried interest.

RATE SENSITIVE

As of June 30, 2022, the rate sensitive portfolio represented \$11.4 billion, or 17.6% of total assets. The rate sensitive portfolio returned -15.3% for the year, compared to -13.7% for its blended benchmark: 48% Bloomberg US Government Long Bond Index, 14% Bloomberg US Investment Grade Corporate Index, 14% Bloomberg US Securitized MBS/ABS/CMBS Index, and 24% Bloomberg US Government Inflation Linked Index.

CREDIT/DEBT STRATEGIES

The credit/debt strategies portfolio totaled approximately \$5.1 billion, representing 7.9% of total plan assets as of June 30, 2022. Investments in this asset class are held in both liquid and illiquid structures. Typical asset types in the portfolio include: high yield bonds, bank loans, emerging market debt, and private debt. The portfolio has a blended benchmark of 87 percent U.S. (80% Bloomberg U.S. Corporate High Yield Index, 20% S&P LSTA Leveraged Loan Index), and 13 percent Non-U.S. (50% Bloomberg EM Hard Currency Sovereign Index, 50% Bloomberg EM USD Corporate Index). The portfolio returned -4.5% for the fiscal year, versus -12.6% for its benchmark.

REAL ASSETS

The real assets portfolio totaled approximately \$9.8 billion, representing 15.2% of total assets as of June 30, 2022. The objectives of this asset class are to provide a level of protection against inflation, and to enhance diversification for the total fund. As of June 30, 2022, the largest component of the asset class was real estate, totaling \$7.1 billion, or 11.0% of total assets. The remaining assets consisted of investments associated with natural resources and infrastructure totaling \$2.7 billion or 4.2% of total assets.

The real assets portfolio returned 25.7% for the fiscal year, compared to 19.9% for its blended benchmark, which consists of approximately 72% real estate with the remainder in natural resources and infrastructure. Real estate achieved a 30.6% return, versus the real estate benchmark return of 28.7%. The natural resources and infrastructure portion of the portfolio achieved a return of 13.7%, outperforming its benchmark by 11.4%, as the private natural resources portfolio exceeded the public market benchmarks.

ABSOLUTE RETURN

The absolute return portfolio totaled approximately \$4.9 billion, representing 7.6% of total assets as of June 30, 2022. The portfolio consists of event-driven, global macro, relative value, equity long/short and opportunistic funds. Its goal is to provide diversification for the total plan through its low correlation to the broad financial markets. The absolute return portfolio returned 1.4%, compared to the 3.0% return for its benchmark.

TERRA MARIA PROGRAM

As previously mentioned, the Terra Maria program seeks to identify promising smaller or developing managers. The three public market program managers serve as an extension of staff to source investment managers, perform manager due diligence, monitor managers and prepare manager "hire/fire" and funding recommendations. The managers include Attucks Asset Management, Xponance, Inc., and Leading Edge Investment Advisors.

Terra Maria publicly-traded assets totaled approximately \$2.2 billion, or 3.4 percent of total assets at June 30, 2022. The program returned -19.2% for the fiscal year, underperforming its custom benchmark return of -17.2%. The relative performance results have remained positive since the April 2007 inception of the program. The System also invests in emerging managers in other asset classes. In private equity, the System has committed \$1.63 billion to developing managers that are minority and women-owned firms.

At the end of fiscal year 2022, \$9.9 billion, or 15.4 percent of the System's total assets, were managed by minority and women-owned firms.

INVESTMENT MANAGEMENT FEES

The asset allocation of the System is the primary determinant of returns. The asset allocation is also the primary determinant in the cost of investing the assets. Thirty-two percent of the policy allocation does not have public market benchmarks and therefore does not have a passive option for implementation. These alternative assets such as closed-end limited partnerships used for private equity, infrastructure and some real estate, in addition to open-end partnerships used for real estate and hedge fund strategies are included in the asset allocation with the objective of earning higher returns over time, reducing risk by providing returns that are differentiated from stock and bond returns, or for both reasons.

These alternative assets are typically structured as limited partnerships with embedded profit sharing provisions to motivate the manager to make profitable investments, and to ensure alignment of interests. Carried interest represents the portion of the investment profits that is earned by managers, and is only paid if performance thresholds are achieved. The percentage of profits that is allocated to the manager is substantially lower than the amount received by the System. Because of this disproportionate sharing of profits, the amounts realized by the System far exceed any

incentive earned by investment managers. Large amounts of carried interest should be considered a positive result, as this would imply much greater gains to the System. In calendar year 2021, the System realized an estimated \$2,017.4 million in profits from these private alternative investments, while the investment managers, or general partners, earned roughly \$370.3 million in carried interest incentives.

The Board is mindful of the negative effects fees have on net investment performance and is committed to aggressively negotiating fair and reasonable terms to mitigate the drag on performance, while maintaining exposure to investments that exhibit positive risk and return characteristics in a total portfolio context.

CONCLUSION

Fiscal year 2022 was a difficult year for financial markets marked by a breakdown in the traditional relationship between stocks and bonds as both asset classes suffered double-digit losses. In this environment, a simple allocation consisting of 60% stocks and 40% bonds would have produced a negative total return of more than ten percent. While the System's -2.97% return did not meet the longterm target, it helped preserve the value of System assets and reduce the required future performance to maintain and improve the plan's funded ratio. This demonstrates the importance of a diversified and balanced asset allocation that provides exposure to several different asset classes whose investment performance is linked to many different economic variables. The Board of Trustees recognizes the importance of risk management and has adopted an asset allocation that is designed to meet the long-term objectives of the fund while providing meaning protection against significant drawdowns in asset valuation.

Respectfully submitted,

Andrew C. Palmer CFA Chief Investment Officer



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INVESTMENT PORTFOLIO SUMMARY as of June 30, 2022 and 2021 (Expressed in Thousands)

	20)22	2	2021
-	Fair Value	% of Fair Value	Fair Value	% of Fair Value
Rate Sensitive				
Fixed Income	\$ 8,447,837	13.1 %	\$ 8,548,084	12.5 %
Inflation linked bonds	2,806,918	4.3	2,668,760	
(1) Cash (non-manager)	912,044	1.4	943,009	
(2) Net cash & cash equivalents (manager)	117,907	0.2	-391,671	
Total Rate Sensitive	12,284,706	19.0	11,768,184	
Credit				
Hight Yield Bond/Bank Loans	4,478,208	6.9	4,847,074	7.1
Emerging markets debt	483,843	0.7	1,283,865	
(2) Net cash & cash equivalents (manager)	117,983	0.2	103,716	0.2
Total Credit	5,080,034	7.8	6,234,655	9.2
Equity				
Domestic stocks	6,633,901	10.3	8,086,572	11.9
Emerging markets stocks	4,984,522	7.7	6,571,094	9.7
Global stocks	2,161,314	3.3	4,090,622	6.0
International stocks	4,032,252	6.2	4,634,062	6.8
(2) Net cash & cash equivalents (manager)	613,772	0.9	772,365	1.1_
Total Public Equity	18,425,761	28.4	24,154,715	35.5
Private Equity	13,881,133	21.5	11,576,672	17.1
Total Equity	32,306,894	49.9	35,731,387	52.6
Absolute Return	4,576,572	7.2	5,776,537	8.6
Real Estate	7,126,622	11.1	5,023,113	7.4
Multi Asset	239,978	0.4	623,282	0.9
Natural Resources & Infrastructure	2,677,902	4.1	2,552,874	3.8
(2) Net cash & cash equivalents (manager)	341,366	0.5	172,533	0.3
Total Portfolio	\$ 64,634,074	100.0 %	\$ 67,882,565	100.0 %

⁽¹⁾ Securities lending collateral payable has been netted against the actual collateral. The amounts net to zero.

Note: This schedule includes assets invested on behalf of the Maryland Transit Administration.

⁽²⁾ Includes investment receivables and payables.

INVESTMENT PORTFOLIOS BY MANAGER as of June 30, 2022
(Expressed in Thousands)

	Fair Value	Investment Advisory Fees			Fair Value		vestment isory Fees
Public Equity			Fixed Income Manager				
RhumbLine Advisors	\$ 1,037,576	\$ 838	State Street Global Advisors	\$	277	\$	362
D E Shaw & Co., LP	1,288,766	3,359	Pacific Investment Management Company		1,937,332		5,153
AQR Capital Management, LLC	549,786	2,541	Western Asset Management		1,721,638		3,382
Baillie Gifford & Company	1,309,048	9,152	Pine Bridge Investments LLC		728,462		1,211
Dimensional Fund Advisors, Inc.	735,530	1,933	Attucks Asset Management, LLC (1)		631,900		1,656
Durable Capital Partners	570,112	19,837	MetLife Investment Management		515,032		1,540
T. Rowe Price Associates, Inc.	1,488,545	5,780	Credit Suisse Asset Management		849,292		1,921
Axiom International Investors	808,412	7,730	Double Line US Securitized		440,944		741
Artisan Partners Limited Partnership	486,744	2,770	Dodge & Cox		330,891		650
RWC Partners Emerging Markets	322,552	2,968	Cash & Cash Equitization		912,044		N/A
Polunin Capital Management	436,263	4,830	Other (2)		32		40
TT International	566,102	4,915	Internally Managed Assets (6)		6,711,492		0
Westwood Global Investment	745,346	5,208	Total Fixed Income	\$ 1	14,779,336	\$	16,656
Brown Capital Management	436,582	3,341					
Xponance(1)	289,551	2,276	Alternative Investment				
Attucks Asset Management, LLC (1)	844,683	5,605	Private Equity (1)	\$	13,881,133	\$	134,804
Leading Edge Invest. Advisors, LLC (1)	422,592	2,661	Credit/Debt Related/Rate Sensitive (1)		2,585,404		31,636
Equity Long Short (1)	2,425,757	89,244	Multi-Asset (3)		245,580		1,281
State Street Global Advisors	31,384	51	Absolute Return (1)		4,896,877		131,310
Record Currency Management	71,308	4,301	Real Assets				
Other (2)	11,070	(167)	Harvest Fund Advisors		405,818		2,439
Internally Managed Assets (6)	3,548,052	0	Tortoise Capital Advisors		104,721		629
Total Public Equity	\$ 18,425,761	\$ 179,173	Rhumbline Advisors		1,196,552		722
			Natural Resources & Infrastructure (1)		985,456		11,367
			Private Real Estate (1)		7,126,701		54,045
			Other (2)		0		4,949
			Internally Managed Assets (6)		735		0
			Total Alternative Investments	\$ 3	31,428,977	\$	373,182
			Total	\$ (64,634,074	<i>4)</i> \$	569.011

⁽¹⁾ Sub-managers separately listed on the following pages

Note: Investment Advisory Fees represents management fees invoiced or reported on capital statements.

⁽²⁾ Consulting fees and/or investment managers no longer under contract as of 6/30/22

⁽³⁾ Assets that represent the overall allocation

⁽⁴⁾ Includes assets invested on behalf of the Maryland Transit Administration.

⁽⁵⁾ Includes management fees allocated to the Maryland Transit Administration.

⁽⁶⁾ Funds separately listed on the following pages

ALTERNATIVE INVESTMENTS RELATIONSHIP LISTING

as of June 30, 2022

Private Equity

1315 Capital,LP 1315 Capital II,LP 89BIO INC Advent Central & Eastern Europe IV,LP Advent International GPE V-D,LP Advent International GPE VI-A,LP Advent International GPE VIIIB,LP Advent International GPE IX,LP Apax Europe VI-A,LP Apax Europe VII-A,LP Apax IX AP IX Connect Co-Invest Holdings, L.P. (Brightspeed) Apollo Investment Fund VII Eruro Holdings, LP Apollo Investment Fund VIII (AIF),LP Apollo Investment Fund IX, LP Arcadia II Beteiligungen BTGmbH&Co Arcutis Biotherapeutics, INC Astorg VII Audax Private Equity Fund II,LP Audax Private Equity Fund III,LP Audax Private Equity Fund IV,LP Audax Private Equity Fund V,LP Audax Private Equity Fund VI,LP Bain Capital Asia Fund III Bain Capital Asia Fund IV Bain Capital Europe Fund IV,LP Bain Capital Europe Fund V,LP Bain Capital Fund X,LP Bain Capital Fund XI,LP Bain Capital Fund XII,LP Bain Capital Fund XIII,LP Bain Capital Life Sciences Fund, LP Bain Capital LifeSciences Fund II,LP BCPE Osprey Investor, LP Baring Asia Private Equity Fund VI,LP Baring Asia Private Equity Fund VII,LP Black River Capital Partners Fund (Agr.A), LP Blackstone Capital Partners VI,LP Blackstone Capital Partners VII,LP Blue Wolf Capital Fund III,LP Blue Wolf Capital Fund IV,LP Bridgepoint Europe Fund V,LP Bridgepoint Europe Fund VI,LP Brinson Partnership 2000 Primary Fund Brinson Partnership 2001 Primary Fund Brinson Partnership 2002 Primary Fund Brinson Partnership 2002 Secondary Fund Brinson Partnership 2003 Primary Fund CDH Fund V,LP ChrysCapital VIII, LLC Clayton, Dubilier&Rice Fund VIII,LP Clayton, Dubilier&Rice Fund IX,LP Clayton, Dubilier&Rice Fund X,LP Clayton, Dubilier&Rice Fund XI,LP Clearlake Capital Partners III,LP Clearlake Capital Partners IV,LP Clearlake Capital Partners V,LP Clearlake Capital Partners VI, LP

Clearlake Capital Partners VII, LP

Coller Capital Partners VI,LP

Coller Capital Partners VII,LP

Coller Capital Partners VIII, LP

Crescent Capital Partners IV,LP

Crescent Capital Partners V,LP Crowdstrike Holdings Inc. A CVC Capital Partners VII, LP CVC Capital Partners VIII, LP CVC European Equity Partners V-B,LP Datadog Inc. Class-A Dover Street VII,LP Eargo Inc Equistone Partners Europe Fund IV,LP Equistone Partners Europe Fund V,LP Equistone Partners Europe Fund VI,LP Everstone Capital Partners II,LLC Everstone Capital Partners III,LLC Exact Sciences Corp FP Co Invest Audax Frazier GB IX Proj Thrm Coinvestment Frazier Healthcare Growth Buyout Fund Frazier Healthcare Growth Buyout Fund IX,LP Frazier Healthcare Growth Buyout Fund X,LP Frazier Healthcare V,LP Frazier Healthcare VI,LP Frazier Healthcare VII,LP Frazier LifeSciences VIII,LP Frazier LifeSciences IX,LP Frazier LifeSciences X,LP Frazier Life Sciences XI, LP Frontier Fund III,LP Frontier Fund IV,LP Frontier Fund V,LP GGV Capital VII,LP GGV Capital VII Plus,LP GGV Capital VIII,LP GGV Capital VIII Plus,LP GGV Discovery II,LP GGV Discovery III,LP Goldman Sachs Vintage Fund V,LP Great Hill Equity Partners IV,LP Great Hill Equity Partners V,LP Great Hill Equity Partners VI,LP Great Hill Equity Partners VII,LP Great Hill Project Compass Green Equity Investors VII Green Equity Investors VIII Gritstone Bio Inc Harbour Vest Partners VI-Partnership Fund,LP Hellman&Friedman Capital Partners VI,LLC Hellman&Friedman Capital Partners VII,LLC Hellman&Friedman Capital Partners VIII,LLC Hellman&Friedman Capital Partners IX,LLC Hellman&Friedman Capital Partners X,LLC Hg Co-Investment Fund Hg Genesis 9 HgCapital 5,LP HgCapital 6A,LP HgCapital 7C,LP HgCapital 8A,LP HgCapital Mercury A,LP Indigo Coinvestment MBK

Institutional Venture Partners XV Institutional Venture Partners XVI Institutional Venture Partners XVII Institutional Venture Partners XVII Co-Investments Jade Equity Investors Jade Project Sun Co-Invest Landmark Equity Partners Co-Investment Fund XVI.LP Landmark Equity Partners XIV, LP Landmark Equity Partners XV,LP Landmark Equity Partners XVI,LP Lexington Capital Partners, VII Lexington Co-Investment Partners IV Lexington Co-Investment Partners V Lexington Co-Investment Partners V-Overage Lexington Middle Market Investors III,LP Lexington Middle Market Investors IV.LP Lightspeed Opportunity Fund,LP Lightspeed Opportunity Fund II Lightspeed Vent Partners Select V Lightspeed Vent Partners XIV A, LP Lightspeed Vent Partners XIV B, LP Littlejohn Fund III,LP Littlejohn Fund IV,LP Littlejohn Fund V,LP Littlejohn Fund VI,LP LLR Equity Partners IV,LP LLR Equity Partners V,LP LLR Equity Partners VI,LP Longitude Venture Partners II LP Longitude Venture Partners III LP Longitude Venture Partners IV, LP Madison Dearborn Capital Partners V,LP Madison Dearborn Capital Partners VI,LP Madison Dearborn Capital Partners VII.LP Madison Dearborn Capital Partners Maryland Innovation Opportunity Fund I MBK Partners Fund III, LP MBK Partners Fund IV.LP MBK Partners Fund V,LP MD Asia Investors, LP MDAsia Investors ILLP MD Asia Investors III,LP MD Asia Investors IV.LP Molecular Templates Inc Navis Asia Fund VI,LP New Mainstream Capital Fund II,LP New Mainstream Capital Fund III,LP New Mountain Partners III,LP New Mountain Partners IV,LP New Mountain Partners V,LP New Mountain Partners VI,LP North Sky CleanTech Fund IV,LP Orchid Asia V,LP Orchid Asia VI,LP Orchid Asia VII.LP

Orchid Asia VIII, LP

PAG Asia Capital II,LP

PAG Asia Capital III,LP

Pacific Equity Partners V,LP

Pacific Equity Partners VI,LP

Partners Group Emerging 2011,LP

Partners Group Secondary 2008, LP

Partners Group Secondary 2011,LP Partners Group Secondary 2015,LP Phathom Pharmaceuticals, Inc Point 406 Ventures 2016 Opportunities Fund Point 406 Ventures II,LP Point 406 Ventures III,LP Point 406 Ventures IV.LP Point 406 Ventures Opportunities Fund II Roark Capital Partners IV,LP Roark Capital Partners V,LP Sierra Oncology, Inc Silver Lake Partners V,LP Silver Lake Partners VI,LP Spark Capital Growth Fund IV, LP Spark Capital VII, LP Sumo Logic, Inc TA Associates XI,LP TA Associates XII.LP TA Associates XIII,LP TA Associates XIV TDR Capital III,LP TDR Capital IV,LP Thoma Bravo Fund XII,LP Thoma Bravo Fund XIII,LP Thoma Bravo Fund XIV.LP Thoma Bravo Project Alpine Co-Invest Tiger Iron Old Line Fund,LP Tiger Iron Old Line Fund II,LP Tiger Iron Old Line Fund III TPG Partners VI,LP TPG Partners VII,LP Uipath Inc, Class A Vaxcyte, Inc Vista Equity Partners Fund IV,LP Vista Equity Partners Fund V.LP Vista Equity Partners Fund VI,LP Vista Equity Partners Fund VII,LP Vista Foundation Fund II,LP Vista Foundation Fund III,LP Vista Foundation Fund IV.LP Vista Foundation Project Avalanche Co-Invest Vista Project Dynamo Co-Invest Vistria Fund I,LP Vistria Fund II.LP Vistria Fund III,LP Vistria Fund IV Wind Point Partners CTSI Co-Invest Wind Point Partners VII,LP Wind Point Partners VIII LP Wind Point Partners IX

ALTERNATIVE INVESTMENTS RELATIONSHIP LISTING

as of June 30, 2022 (continued)

Private Real Estate

Abacus Multi Family Partners V AEW Partners Fund IX AEW Pix MM Co-Invest AEW Senior Housing Fund II,LP AEW Senior Housing Fund IV,LP ARES Industrial Real Estate Fund Asana Partners Fund III Carmel Partners Investment Fund Carmel Partners Investment VIII CBRE Strategic Partners EURO

CBRE Strategic Partners US

CBRE US Core Partners

Clarion Lion Property Fund Federal Capita lPartners Fund III Federal Capital Partners Fund II FPA Core Plus Fund V Frogmore Real Estate Partners II,LP GI Partners Fund IV,LP Heitman America Real Estate Trust Heitman Value Partners V HVP V SR Co-Investment, LP JER Europe Fund III JP Morgan Strategic Property JP Morgan Sunbelt Resd Devt Fund Lasalle Property Fund Lion Industrial Trust Lone Star Real Estate Fund II,LP

Lone Star Real Estate Fund III,LP Lone Star Real Estate Fund IV,LP Lone Star Real Estate Fund V,LP Lone Star Real Estate Fund VI,LP Lubert Adler Real Estate Fund VI Lubert Adler Real Estate Fund VI-A Morgan Stanley Global Reits Morgan Stanley Inv. mgmt. Reit's Morgan Stanley Prime Property Fund,LLC North Haven Re Fund X Global Realty Associates Fund X Rockwood Capital RE Partners Fund IX,LP

SSGA Global Liquid Re Securities Starwood Hospitality Fund II,LP Tristan Capital-European Special Opps3 Tristan Capital-European Special Opps4 Tristan Capital-European Special Opps5 Truamerica Workforce Housing UBS Trumbull Property Fund Waterton Residential Property Venture XIII Waterton Residential Property Venture XIV

Real Return

Fund III

Value7 LP

Alinda Infrastructure Fund II, LP Domain Timber Investments EIF US Power Fund IV, LP Energy and Minerals Group V, LP Energy and Minerals Group V-Accordion, LP First Reserve Fund XII, LP

First Reserve Fund XIII, LP Global Timber Investors 9 Hancock Timberland X, LP Harvest Fund Advisors, LLC ISQ Global Infra Fund III, LP MD Global Infrastructure Natural Gas Partners IX, LP

Natural Gas Partners X, LP Natural Gas Partners XI, LP NGP Natural Resources XII NGP Midstream & Resources, LP Quantum Energy Partners V, LP Quantum Energy Partners VI, LP Quantum Energy Partners VII, LP

Scout Fund II, LP

Rhumbline DJ Global Infastructure Rhumbline Global Natural Resources RMS Forest Growth III,LP Tortoise Capital Advisors, LLC White Deer Energy, LP

Absolute Return

1977 Merger Arbitrage Fund Aristeia Partners, LP Aristeia Select Opportunities I Aristeia Select Opportunities II Avidity Capital Fund, LP BFAM Asian Opportunities Fund Brevan Howard FG Macro Fund,

Bridgewater All Weather

Bridgewater Pure Alpha Clover Parallel, LLC Contrarian Emma 2 Empyrean Capital Fund Exodus Point HSCM Bermuda Fund Ltd Hudson Bay Fund ILS Property Casualty Fund II King Street Capital

King Street Drawdown King Street Overflow Kirkoswald Global Macro Fund Lone Star Fund XI Nephila Palmetto Fund Nimbus Weather Fund LTD Petershill IV Petershill Private Equity Pharo Gaia Fund, LTD.

PHM IV Co Investment, LLC SGM Co-Investment Fund LP Silver Lake Alpine II, LP Standard General II TORQ Capital Tudar Maniyar Voloridge Yiheng Capital Parnters, LP

FIXED INCOME RELATIONSHIP LISTING

as of June 30, 2022

Credit/Debt Related

AG Potomac Fund Alchemy Special Opps. Fund II,LP Alchemy Special Opps. Fund III,LP Apollo Credit Opps Fund III,LP Berkshire Multifamily Debt III CarVal Credit Value Fund A III,LP CarVal Credit Value Fund A IV,LP CarVal Credit Value Fund A V,LP CarVal Credit Value Fund A,LP Carval Credit Value II Castle Lake III,LP Castle Lake IV,LP Castle Lake V.LP Castlelake Aviation IV Stable Yield . LP

Castlelake Aviation IV Stable Yield Opps. LP

CB HS Aggregrator II Charlesbank Credit Dislocation Overage Fund Crescent Capital Mezzanine Partners VI, LP CVI Chesapeake Credit Opps A Fund, LP CVI Chesapeake Credit Opps B Fund, LP EIG Energy Fund XV,LP EIG Energy Fund XVI,LP Falcon Strategic Partners III,LP Falcon Strategic Partners IV,LP FP Credit Partners II GSO Credit Alpha Fund II HCR Potomac Fund Healthcare Royalty Partners IV

KKR Mezzanine Partners I,LP LCM Partners COPS 4 Merit Mezzanine Fund V,LP Oaktree European Principal Fund III,LP Oaktree Opportunity Fund VIII,LP Oaktree Opportunity Fund VIIIB,LP Oaktree Principal Fund V Orion Minerals Royalty Fund I Park Square Capital Partners II,LP Partners Group European Mezzanine 2008,LP Peninsula Fund V,LP Perella Weinberg Partners

Highbridge Convertible Dislocation

Prudential Capital Partners III,LP Prudential Capital Partners IV,LP Shamrock Capital Content Fund II, LP Shamrock CCF II Coinvestment I Shoreline China Value Fund III,LP TA Subordinated Debt Fund III,LP Taurus Mining Finance II Varde Fund X,LP Wayzata Opportunities Fund III,LP Whitehorse Liquidity Partners III, Whitehorse Liquidity Partners IV,

Whitehorse Liquidity Partners V Whitehorse Liquidity V Co-Invst WHLP Loch Raven Fund

Rate Sensitive

Garda Firvo

Voya MSR Opportunities Fund I

TERRA MARIA PROGRAM as of June 30, 2022

Terra Maria Program

Attucks Asset Management

Arga Investment Management,LP

Birch Run Investments

Garcia Hamilton and Associates

Globeflex Capital,LP

Lebenthal Lisanti Capital Management, LLC

LM Capital Group, LLC

Longfellow Investment Management

Metis Global Partners New Century Advisors

Pacific Ridge Capital Partners

Paradigm Asset Management Company,LLC

Phocas Financial Corp

Profit Investment Management

Pugh Capital Management

Ramirez Asset Management

Redwood Investments,LLC

Semper Capital Management

Sky Harbor Capital Management

Summit Creek Advisors

Xponance

Algert Global, LLC

Arga Investment Management, LP

Denali International Small Value

EAM Investors

Lizard Partners, LLC

Leading Edge Investment Advisors

Ativo Capital Management Blackcrane Capital LLC Frontier Global Partners Henry James International

Redwood Investments, LLC

Strategic Global Advisors

Bold denotes Program Manager for the Terra Maria Program

EQUITY RELATIONSHIP LISTING

as of June 30, 2022

Public Equity

Axiom International Investors

Baillie Gifford DFA Emerging Mkts

Durable Capital Onshore Fund, LP

Durable Capital Opportunities Fund, LP

Marshall Wace Americas Tops (Long-Only) Marshall Wace TOPS China (Long/Short) Marshall Wace TOPS Emerging Markets

(Long/Short)

Polunin Capital Management

Redwheel Emerging Markets Equity Fund

LP

SSGA Emerging Market Index Fund

T. Rowe US Structured

Equity Hedge

Marshall Wace Eureka Fund

INTERNALLY MANAGED ACCOUNTS

as of June 30, 2022

Commodity Structural

Emerging Markets Structural Overlay/

Tactical

Global Equity Tactical

Inflation Sensitive FI Structural

International Equity Structural/ Tactical

MD IG Corporate Bonds

MD Long Government Bonds

MD Securitized Bonds

MD US Large Cap Equity

MD US Small Cap Equity

Nominal Fixed Income Structural/ Tactical

MD TIPs

US Equity Structural/ Tactical

EQUITY COMMISSIONS TO BROKERS for the Fiscal Year Ended June 30, 2022 (Expressed in Thousands)

Brokers (1)	Total Total Shares	Total Total Commission	Average Commision Per Share
Instinet	225,856	\$ 674	\$ 0.30
J P Morgan Securities	157,900	612	0.39
CLSA	22,923	424	1.85
Goldman Sachs	68,269	412	0.60
Citigroup Global Markets	28,645	312	1.09
BOFA Securities	36,675	305	0.83
Credit Suisse Securities	82,589	261	0.32
Merrill Lynch	56,939	244	0.43
Morgan Stanley	62,860	237	0.38
Jefferies & Company	30,179	204	0.68
UBS Securities	71,787	193	0.27
Citibank	40,099	153	0.38
HSBC Securities	43,654	150	0.34
B.Riley&Co	4,548	136	2.99
Pershing	23,858	124	0.52
Loop Capital Markets	4,130	112	2.71
CIBC	10,356	100	0.97
Other Broker Fees	414,197	1,887	0.46
Total broker commissions	1,385,464	\$6,540	\$ 0.47

(1) Proceeds from the sale and disbursements for the purchase of securities are reported net of brokers' commissions. As such, brokers' commissions are not included as investment expenses on the Statement of Changes in Plan Net Assets. Other broker fees include 130 brokers each receiving less than \$100,000 in total commissions.

For the fiscal year ended June 30, 2022, total broker commissions averaged .47 cents per share.

LARGEST STOCK & BOND HOLDINGS AT MARKET as of June 30, 2022

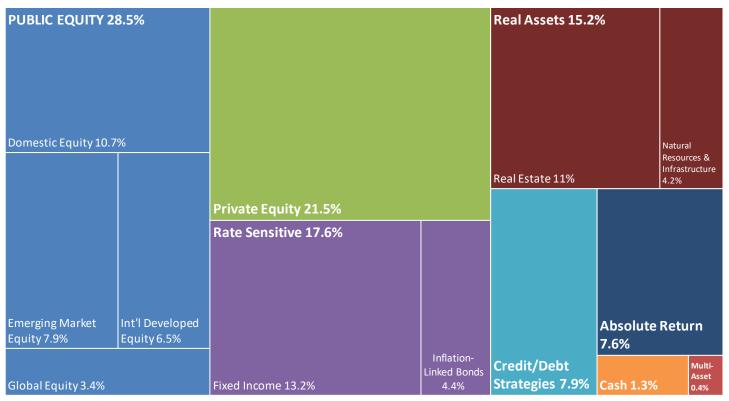
as of J	une 30, 2022	Fair
EQUITY INCOME SECURITIES:	Shares	Market Value
Apple Inc.	1,770,987	\$242,129,343
Microsoft Corporation	849,728	218,235,642
Amazon.com Inc.	1,326,004	140,834,885
American Tower Corp.	416,201	106,376,814
Energy Transfer LP	10,223,621	102,031,738
Tesla Inc.	150,343	101,243,983
Cheniere Energy Inc.	689,867	91,773,007
Enbridge Inc.	2,040,852	86,003,888
Enterprise Products Partners	3,482,562	84,870,036
Alphabet Inc. Class A	38,005	82,822,776
Alphabet Inc. Class C	36,027	78,807,261
Mplx LP	2,431,727	70,884,842
Crown Castle Inc.	398,423	67,086,465
Targa Resources Corp.	1,118,574	66,745,311
National Grid Plc	4,756,072	60,763,643

FIXED INCOME SECURITIES:	Par Value	Fair Market Value
United States Treasury Inflation Linked, 0.125% 15 Jan 2032	\$321,170,080	\$304,854,640
United States Treasury Inflation Linked, 1.75% 15 Jan 2028	282,850,800	300,234,810
United States Treasury Inflation Linked, 0.625% 15 Jan 2024	251,480,460	255,783,291
United States Treasury Inflation Linked, 3.625% 15 Apr 2028	194,800,440	227,521,070
United States Treasury Bonds, 2.875% 15 May 2043	212,400,000	193,683,312
United States Treasury Inflation Linked, 3.875% 15 Apr 2029	152,973,840	184,689,906
United States Treasury Bonds, 3% 15 Nov 2044	196,000,000	181,629,280
United States Treasury Inflation Linked, 2.375% 15 Jan 2025	167,148,553	177,115,621
United States Treasury Inflation Linked, 0.75% 15 Feb 2045	197,076,731	176,436,885
United States Treasury Inflation Linked, 0.25% 15 Jan 2025	148,888,800	149,791,066
United States Treasury Bonds, 2.5% 15 Feb 2045	172,200,000	146,047,986
United States Treasury Bonds, 3.75% 15 Nov 2043	127,585,000	133,461,565
United States Treasury Inflation Linked, 0.625% 15 Jan 2026	130,743,196	132,207,520
United States Treasury Bonds, 1.625% 15 Nov 2050	163,330,000	114,873,256
United States Treasury Inflation Linked, 3.375% 15 Apr 2032	89,566,400	111,881,869

A complete list of portfolio holdings is available upon request.

INVESTMENT PORTFOLIO ALLOCATION

as of June 30, 2022

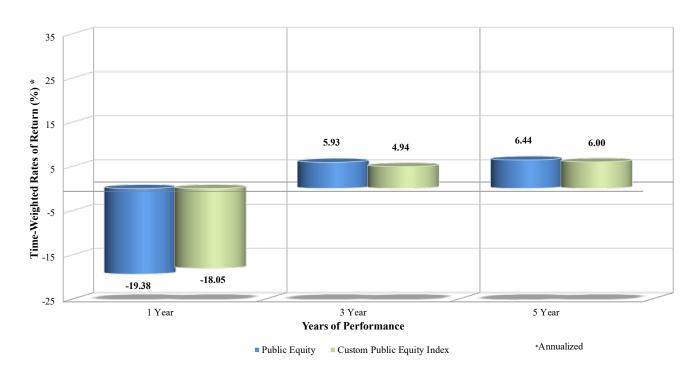


- PUBLIC EQUITY 28.5%
- MULTI-ASSET 0.4%
- PRIVATE EQUITY 21.5%

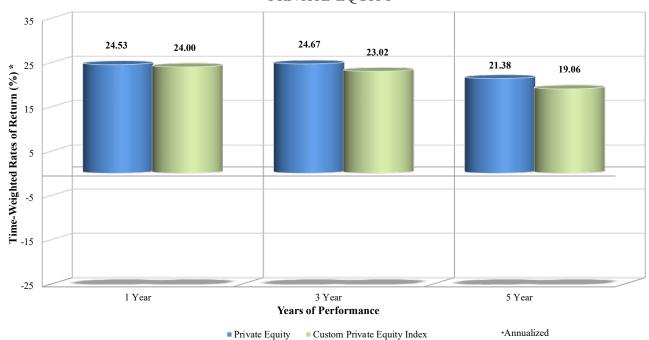
- RATE SENSITIVE 17.6%
- CREDIT/DEBT STRATEGIES 7.9%CASH 1.3%
- ABSOLUTE RETURN 7.6%
- REAL ASSETS 15.2%

COMPARATIVE INVESTMENT RETURNS ENDING JUNE 30, 2022

PUBLIC EQUITY

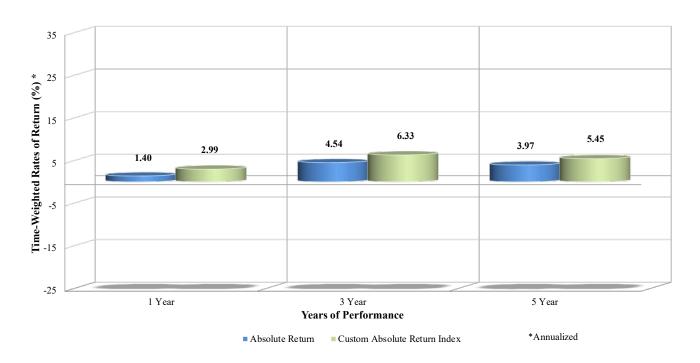


PRIVATE EQUITY

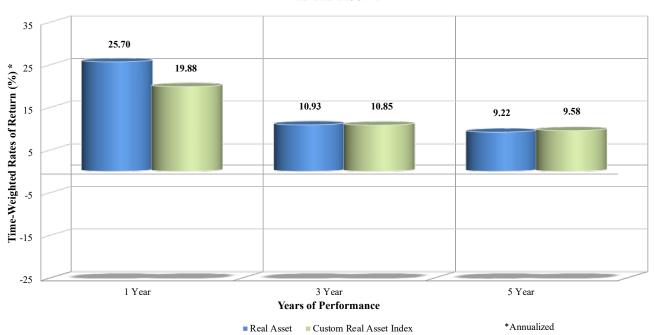


COMPARATIVE INVESTMENT RETURNS ENDING JUNE 30, 2022

ABSOLUTE RETURN

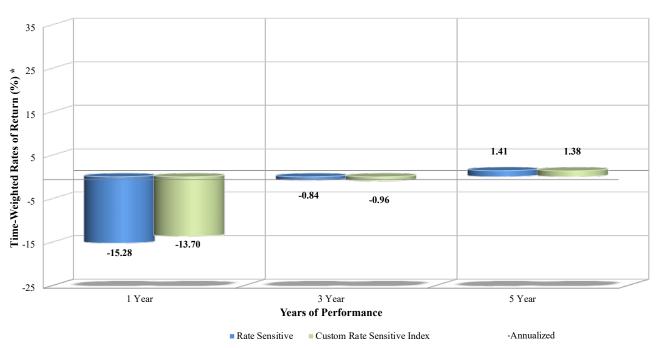


REAL ASSET

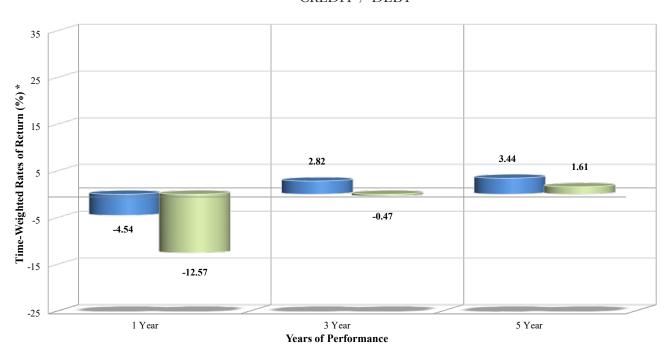


COMPARATIVE INVESTMENT RETURNS ENDING JUNE 30, 2022

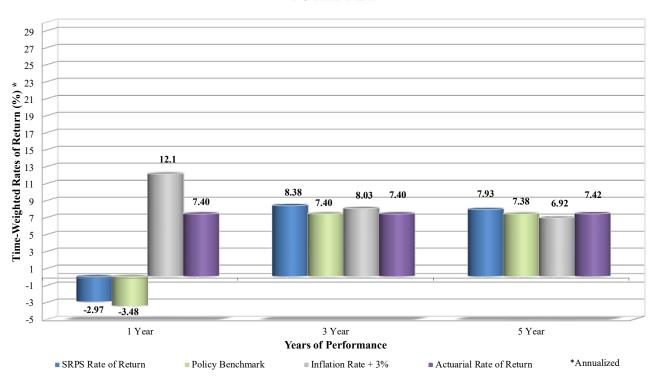
RATE SENSITIVE



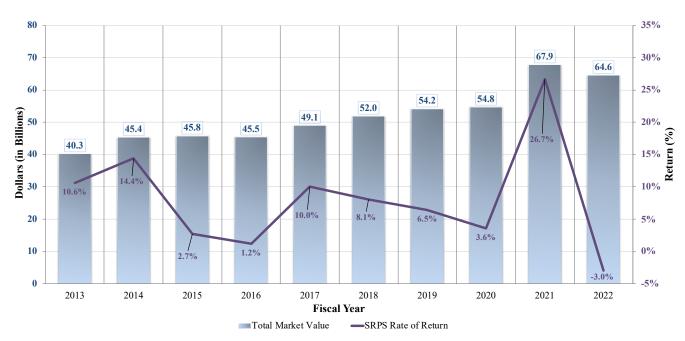
CREDIT / DEBT



TOTAL PLAN



TEN-YEAR HISTORY OF TIME-WEIGHTED ANNUAL RETURNS & GROWTH OF INVESTMENT PORTFOLIO





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